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# GAMIFICATION OF FLIGHT CREW TRAINING SYSTEM THROUGH GENERATIVE GAMES

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## Content

Interactive methods have become well established in the flight crew training system, proving their relevance and topicality. We consider gamification as a way of game practices systematization in order to increase the training effectiveness for flight crews.

Considering the specifics of flight training and understanding the impossibility of working out every situation that may occur during the flight, and even more so to prescribe and work with the aircraft crews, we suggest focusing on a system of game methods aimed at maintaining the readiness of the flight crew to successfully operate in the whole range of situations: from usual to emergency. At the organizational level, this ensures an acceptable safety level of the Airline's flights.

The international civil aviation community recommends focusing on the competencies development in flight crew training (ICAO/ IATA/ IFALPA, EBT Implementation Guide, 2013):

1. Application of Procedures.
2. Communication.
3. Aircraft Flight Path Management, automation.
4. Aircraft Flight Path Management, manual control.
5. Leadership and Teamwork.
6. Problem Solving and Decision Making.
7. Situation Awareness.
8. Workload Management.
9. Knowledge (offered by Airbus)

Five competencies are related to non-technical (CRM Skills), which are difficult to develop through automated training.

One of the competence developing methods widely used to form safe behavior is and recommended by the international aviation community is generative games (V.Ponomarenko, V.Tretyakov, A.Zakharov, 2017) that have proven themselves in the energy industry as a tool to increase personnel reliability and are successfully held in Russia, the CIS countries, France, Germany, and the USA.

Since 2016, the International Academy of Human Problems in Aviation and Aeronautics has been implementing the project "Using game techniques in the training of aviation personnel".

Game methodology: the concept of moral personality development in aviation (academician of the RAE V.Ponomarenko) and using the generative scenarios (prof. V.Tretyakov).

During ground training, as part of the project, we use the following generative games:

- The game "Flight" was held as part of the Recurrent CRM Training for the flight crews (Tested in the "S7 Training").
- The game "SAFA Inspection" was used during the joint training of pilots and flight attendants (Implemented in the JSC "Rossiya Airlines" to reduce SAFA inspector comments for International flights).
- The "Limitations" card game was used during the convention or transition training to the A-320/ B-737 (at the theoretical knowledge assimilation stage before the simulator training).
- A version of the aviation board game "KOMESKA" has already been developed. It will serve as an introduction to the specifics of aviation career (this game has already been tested at the S7 training center and several airlines: Rossiya Airlines and Meridian Airlines).

Simulator training also includes generative scenarios. The instructor takes the situation to the

plane of success by reinforcing the pilots “safe behavior” skill.

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